

REMARKS

In view of the foregoing amendments and following remarks responsive to the Final Office Action, Advisory Action and Examiner Interview in this application, Applicant respectfully requests favorable reconsideration of this application.

Applicant has herein amended independent claims 1 and 15 to more clearly recite the present invention. Applicant has amended other claims to correct typographical errors and/or improve their grammar.

The Office has rejected Claims 1, 3-7, 9, and 14-20 under 35 U.S. C. §102(e) as being anticipated by Kim. The Office has rejected Claims 2 and 8 under 35 U.S.C. §103 as being unpatentable over Kim.

Finally, the Office has rejected Claims 10-13 and 21-24 under 35 U.S.C. §103 as being unpatentable over Kim in view of Van Schyndl.

Applicant respectfully thanks the Examiner for his kindness and courtesy in conducting a telephonic interview with Applicant's undersigned representative last week. During that interview, Applicant's representative formed the impression that it was advisable to file the accompanying request for continued prosecution insofar as the Examiner appeared to be of the opinion that allowance of the claims may be attainable by further amendment of the claims. Particularly, during the interview, Applicant received the impression that the Examiner believed that the previous language of at least some of the independent claims read on a standard TALK button of a telephone handset, an interpretation of the claims which Applicant obviously does not intend.

The Present Invention

The present invention relates to methods and apparatus for selectively routing the audio between the headset or the handset of a mobile transceiver, such as a cellular phone, in a manner that is extremely easy, convenient, and intuitive for the user of the transceiver. Particularly, one of the problems in the prior art addressed by the present invention is the fact that a cellular telephone user often may have the telephone in his or her pocket with the headset connected to the handset. Existing

cellular telephones are designed to automatically route the audio to the headset when the jack of the headset is connected to the jack receptacle of the handset. When an incoming call is received, there is a very limited amount of time to answer the call, which the user may wish to answer by using the handset as opposed to the headset (for instance, because the user does not have enough time to unwrap the headset from the handset and place it on his or her head within the limited time available for answering the call). Yet it may be difficult to disconnect the headset jack within that time because the headset wire is wrapped around the handset. Alternately, the user may not realize that the headset is plugged in and may attempt to talk on the telephone using the speaker and microphone of the handset, only to discover that the speaker and microphone on the handset are disabled because the headset is plugged in. This is a less than optimal design.

The present invention solves this problem. In accordance with the first embodiment of the invention, first and second switches are provided on the handset and headset, respectively. Operation of the switch on the handset initiates (or accepts) the call (i.e., takes the phone "off-hook") and automatically routes the call on a first audio path that is connected to the microphone and speaker of the handset. If, on the other hand, the user operates the second switch on the headset, the phone is taken "off-hook" and simultaneously the call is routed on a second audio path to the microphone and speaker of the headset. Accordingly, the audio path is selected by the user's choice of which switch he/she operates and is not dictated to the user merely by the fact that the headset is connected to the handset.

In another embodiment of the invention, two switches again are provided. However, in this embodiment, one switch initiates (or accepts) a call and another switch toggles between the audio path on the handset and the audio path on the headset. Again, the user can easily select between the audio path in the handset and the audio path in the headset and the path is not dictated to the user merely by whether or not the headset is connected to the handset.

In yet another embodiment of the invention, first and/or second switches are provided having essentially the same functions as the first and/or second switches in the first embodiment, except that the switches are operated automatically depending

on a detection of some physical condition indicative of whether the user intends to use the headset or handset. For instance, a switch may be an acoustic impedance, infrared, or capacitive switch that detects proximity of the handset to the user's head and, if proximity to the user's head is detected, routes the call through the audio path in the handset regardless of whether the headset is plugged into the handset. In another embodiment, the switch is disposed on the headband of the headset and detects the tension on the headband (when it is stretched to be placed on the user's head) and selects the audio path in the headset responsive to such detection.

The Kim Reference

The Kim reference is the Office's primary reference in all the claim rejections. However, Kim does not teach that for which it has been cited.

The Office asserted that Kim discloses a switch that, when operated, both initiates a call and routes the audio signals on a selected one of the first and second audio paths. This feature allegedly is shown in Figures 5 and 7-8 and discussed and disclosed in column 3, lines 3-55 and column 4, lines 34-49 of Kim. However, Kim discloses nothing more than the admitted prior art. Particularly, the portions of the specification cited by the Office simply disclose a specific circuit for automatically routing the audio to the headset responsive to the headset being plugged into the handset. There is no disclosure of a switch operable by the user that allows the user to select the audio path separately from the connection of the headset to the handset. As in the prior art, there is no single switch which both initiates or accepts a call and also selects between two possible audio paths. The first two embodiments disclosed in Kim in connection with Figures 2 through 6 merely disclose circuits for detecting whether or not the headset plug is plugged in to the telephone jack and routing the audio to the headset when it is plugged in. The third and fourth embodiments disclosed in connection with Figures 7-9 have a first switch on the handset and a second switch on the headset, either of which can be operated to initiate a telephone call. Column 6, line 56, through column 7, line 13. However, it does not select the audio path. The audio path is still selected by the circuit for detecting whether the headset is plugged into the handset, as in the first two embodiments.

Traversal of Rejections

Based on the aforementioned telephonic interview, it seems that the dispute with respect to the Kim reference is not so much a dispute as to what is taught in Kim, but whether Applicant's claims were phrased so as to read on a standard TALK button on a telephone handset. Particularly, the previous language of claim 1, for instance, recited "said switch configured such that the operation thereof has the effect both of initiating and/or accepting a call, and of routing audio signals to a

selected one of the first and second audio paths". This language could arguably be read on any switch that initiates a call merely because that call will be routed on some audio path. Obviously, Applicant's intent was not to cover any such switch, but only a switch that selected one of the two audio paths (i.e., the headset audio path or the handset audio path) regardless of whether the headset was connected to the handset.

Applicant has amended independent claims 1 and 15 to now more clearly recite this aspect of the invention. Specifically, claim 1 now recites "routing audio signals to said audio path corresponding to said one of said handset and said headset on which said switch is disposed regardless of whether said headset is connected to said handset". Independent claim 15 now recites "monitoring the handset for receipt of an incoming call and, responsive to operation of the first switch, initiating or accepting a call and routing the call on the first audio path regardless of whether said headset is connected to said handset, and, responsive to operation of the second switch, initiating or accepting a call and routing the call on the second audio path regardless of whether said headset is connected to said handset". This language should eliminate any potential reading of the claim on a standard TALK button of a telephone handset.

The Office asserted that Kim discloses "wherein a first switching means (Talk Button) is located in the handset for initiating, accepting and/or terminating a call and a second switching means 720 having similar function is located in the headset, and wherein operation of the first switching means followed by operation of the second switching means, or vice versa, is effective to select the other of the selected one of the first and second audio paths (see figs. 5-8 and col. 5, line 53 to col. 7 line 13)."

This simply is not accurate. The entire focus of the Kim reference is a circuit that automatically routes the audio to the headset if it is detected as being attached to the telephone and routes the audio to the handset if the headset is not detected as being attached to the telephone. Kim discloses exactly the prior art that the present invention is designed to circumvent.

Therefore, claim 1 distinguishes over the Office's description of the teachings of Kim.

Furthermore, the Office's description of Kim is inaccurate in any event. The Office refers to two switches in its rejection, namely, the TALK button on the telephone and switch 720 on the headset. However, neither of these switches does what the Office asserts.

Applicant has fully reviewed the specification of Kim and it does not mention a TALK button. Nevertheless, the standard TALK button of a telephone performs only initiating/accepting/terminating a call and routing it on an audio path that is a function of whether or not the headset is connected to the handset. With respect to switch 720, it is mentioned in the specification of Kim only once, at col. 5, line 39, where it states that earphone plug 740 has an earphone switch 720. There is no further discussion or mention of switch 720 in Kim. Therefore, there is no disclosure in Kim of the function or operation of switch 720, let alone, a disclosure that it both initiates/accepts a call and selects an audio path. In fact, Kim quite clearly discloses at great length that it is the plugging in of the headset that automatically switches between the audio path of the handset and the audio path of the headset.

The following is a description of how Kim's telephone of Figures 7 and 8 works as described in Kim.

The headset of Figure 7 works like the headset of Figure 1B (col. 5, lines 43-52). The headset of Figure 1B is automatically detected when the headset plug is inserted into the TDMA jack of the telephone (col. 1, line 65 to col. 2, line 4). Referring to Figure 8, a switch 840 on the headset has some function such as "call start, call end, and voice recognition start functions" (col. 7, lines 2-6 and col. 6, lines 12-14). Circuitry 800, 810, 820, 830 detects whether the switch 840 is open or closed and sends a corresponding high or low signal to a controller (col. 6, line 57 to col. 7, line 4). Responsive to whether the switch 840 is open or closed, the controller takes suitable action (such as starting a call, ending a call, or starting voice recognition) (col. 7, lines 4-8).

Nothing in Kim suggests that switch 720, switch 840, or a TALK button both initiates a call and routes the call to a particular one of the two possible audio paths regardless of whether the headset is coupled to the handset. Quite to the contrary, Kim spends most of the specification describing how switching between the handset

and the headset occurs automatically upon insertion of the headset jack into the appropriate plug on the telephone.

The portion of the specification that the Office has focused upon, namely, col. 5, line 53 through col. 7, line 13 discussed how switch 840 operates. But switch 840 has nothing to do with switching audio paths (col. 7, lines 2-6 and col. 6, lines 12-14). Kim clearly discloses that switch 840 has a function such as call start, call end, or voice recognition start switch. Nothing in Kim supports the conclusion that operation of a TALK button followed by operation of switch 720, or vice versa, "is effective to select the other of the selected one of the first and second audio paths".

There is nothing to suggest that operation of a TALK button when the phone is active and in the headset mode will do anything other than disconnect the call. (In fact, as previously noted, there is no TALK button disclosed in Kim). There is nothing to suggest that switch 840 selects between audio paths. There is no description whatsoever of the function of switch 720.

On the other hand, there is a detailed description in Kim of how the connection of the headset plug into the telephone jack causes the switching of the audio paths (col. 1, lines 40-59, col. 1, line 65- col. 2, line 10, col. 2, lines 48-67, col. 3, lines 31-39, col. 4, lines 39-49, col. 4, lines 61- col. 5, line 8, col. 5, lines 39-45).

Accordingly, Claim 1 and its dependent claims 2-7 patentably distinguish over Kim.

Independent Claim 8 generally pertains to the second above-described embodiment in which a toggle switch is provided separate from the call initiation switch for switching between audio paths. Again, this is not taught by Kim, which merely discloses (1) circuitry for detecting whether the headset is plugged in and routing the audio to the headset if it is plugged in, just as in the admitted prior art, and (2) an extra switch on the headset for taking the phone "off-hook". These two teachings either taken individually or combined simply do not meet the limitations of claim 8. Again, Applicant has herein amended the language of claim 8 in order to more definitively avoid any potential interpretation that would read on Kim. Particularly, claim 8 now reads "a second switch manually operable independently of whether the headset is connected to said handset for toggling the audio path to a

selected one of the first audio path and the second audio path". The previous language was potentially ambiguous as to what the second switch's operation was independent of.

Independent claim 9 pertains generally to the third above-described embodiment, in which a switch automatically detects use of the handset or headset.

As noted above, Kim discloses a circuit that determines merely whether the headset is connected to the handset, not a circuit for determining whether the headset is in use or not. Accordingly, claim 9 distinguishes over the prior art of record because the prior art does not disclose "detecting means for detecting use of the headset or handset by the user and automatically enabling the respective first or second audio path responsive to the detection".

Dependent claims 10-13 recite specific embodiments of the detecting circuit, including a capacitance sensor, an infrared sensor, an acoustic impedance sensor, and a sensor for detecting tensioning of the headset headband. The Office rejected claims 10-13 over Kim in view of Van Schyndl. However, claims 10-13 distinguish over the prior art at least because they depend from claim 9, which distinguishes over Kim, and Van Schyndl does not provide the above-described teachings lacking from Kim.

Independent claim 15 is a method claim that distinguishes over the prior art for essentially the same reasons provided above in connection with independent apparatus claim 1. Particularly, Applicant has amended claim 15 similarly to claim 1.

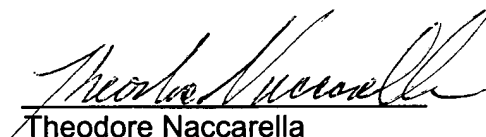
It now recites a first switch on the handset for "initiating or accepting a call and routing the call on the first audio path regardless of whether said headset is connected to said handset, and, responsive to operation of the second switch, initiating or accepting a call and routing the call on the second audio path regardless of whether said headset is connected to said handset". As discussed above in connection with claim 1, Kim does not disclose a switch that both initiates a call and selects the audio path for the call. In Kim, the audio path is selected by whether or not the headset is connected to the handset, which is a separate circuit from the circuit for initiating the call. Thus, Kim does not meet the limitations of claim 15.

Claims 16-24 depend from claim 15 and, therefore, distinguish over the prior art of record for at least the reasons given for claim 15, from which they depend.

In view of the foregoing amendments and remarks, this application is now in condition for allowance. Applicant respectfully requests the Examiner to issue a Notice of Allowance at the earliest possible date. The Examiner is invited to contact Applicant's undersigned counsel by telephone call in order to further the prosecution of this case in any way.

Respectfully submitted,

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